UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
MEROUAN, ABDERRAHIM

ART UNIT	PAPER NUMBER
4192	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 September 2006</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-12</u> is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-12</u> is/are rejected.
7)☒ Claim(s) <u>1-12</u> is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☒ All b)☐ Some * c)☐ None of:
    1.☒ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date <u>06/20/2007</u>.

4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Comments

The name of the inventor is not the same in the filing documents and the information disclosure statement by the applicant (IDS).

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Objections

Claims 1-12 are objected to because of the following informalities. They contain:" .. Characterized ..." , which does not follow standard US practice. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1- 3, 5-7 and 9-11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by MacPherson (US-PGPUB 20020184245 A1) Hereinafter referred as MacPherson.

As per claim 1 MacPherson teaches:

A method for processing a computer aided polygon model, comprising:

forming a vertex array which is linear and static and comprises the vertices of the image elements of the polygon model; (MacPherson, Paragraph[0015], lines 1 to 3)

forming an index array which is linear and the elements of which determine the image elements of the polygon model by pointing at the vertices of the image elements in the vertex array, (MacPherson, Paragraph[0018], lines 1 to 6)

and which index array comprises an active part, the image elements determined by the elements of the active part being included in the polygon model part to be presented graphically; characterized by (MacPherson, Paragraph[0019], lines 1 to 9)

forming additionally a hierarchical data structure whose hierarchy is based on the division of the vertices in the image space, (MacPherson, Paragraph[0023], lines 1 to 3)

the nodes of which hierarchical data structure point at nodes of a lower level in the hierarchy, the leaf nodes of the hierarchical data structure pointing at elements of the active part of the index array; and (MacPherson, Paragraph[0023], lines 6 to 10)

reducing the polygon model part to be presented graphically by means of the hierarchical data structure, maintaining the linearity of the index array. (MacPherson, Paragraph[0028], lines 1 to 6)

3.   As per claim 2 MacPherson teaches: A method according to claim 1, characterized by reducing the polygon model by, claim 2 adds into claim 1:

removing at least two hierarchically equal leaf nodes from the hierarchical data structure; (MacPherson, Paragraph[0025], lines 1 to 4)

including the location information representing the vertices pointed at by the index array elements pointed at by said at least two leaf nodes in a node of an upper level in the hierarchy, whereby this upper level node becomes a leaf node; and (MacPherson, Paragraph[0028], lines 1 to 6)

removing at least one element of the index array pointed at by said at least two hierarchically equal leaf nodes from the active part. (MacPherson, Paragraph[0020], lines 1 to 6)

4.   As per claim 3 MacPherson teaches: A method according to claim 1, claim 3 adds into claim 1:

characterized by:

forming an index array in such a way that the index array also comprises a passive part, the vertices pointed at by the elements of the passive part belonging outside the

polygon model part to be presented graphically; and (MacPherson, Paragraph[0022], lines 1 to 8)

reducing the polygon model part by moving at least one index array element from the active part to the passive part. (MacPherson, Paragraph [0025], lines 1 to 7)

5. Arguments used to reject 5 are analogous to argument used to reject claim 1

6. Arguments used to reject 6 are analogous to argument used to reject claim 2

7. Arguments used to reject 7 are analogous to argument used to reject claim 3

8. Arguments used to reject 9 are analogous to argument used to reject claim 1

9. Arguments used to reject 10 are analogous to argument used to reject claim 2

10. Arguments used to reject 11 are analogous to argument used to reject claim 3

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12.   Claims 4, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacPherson (US-PGPUB 20020184245 A1) Hereinafter referred as MacPherson. as applied to claim 1 above, in view of Pentkovski et al. (US-PGPUB 20020008698 A1), hereinafter Pentkovski

13.   As per claim 4 MacPherson teaches: A method according to claim 1. characterized by forming a hierarchical data structure by:

        MacPherson doesn't teach:

dividing the coordinate space represented by the polygon model into hierarchical sectors on the basis of vertices contained in the vertex array;

including the pointers of the nodes corresponding to the sectors of the next lowest level in the hierarchy in the node corresponding to each hierarchical sector;

including the pointers pointing at the index array elements pointing at the vertices determining the lowest hierarchical sector in the leaf nodes.

    Pentkovski teaches:

dividing the coordinate space represented by the polygon model into hierarchical sectors on the basis of vertices contained in the vertex array; (Pentkovski, Paragraph[0043], lines 1 to 6)

including the pointers of the nodes corresponding to the sectors of the next lowest level in the hierarchy in the node corresponding to each hierarchical sector; (Pentkovski, Paragraph[0044], lines 1 to 4)

including the pointers pointing at the index array elements pointing at the vertices determining the lowest hierarchical sector in the leaf nodes. (Pentkovski, Paragraph[0045], lines 1 to 4)

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Pentkovski into MacPherson since MacPherson did not suggest hierarchical data structure, and Pentkovski suggests the beneficial use of the hierarchical data structure such as to manage the storage of the image elements.

14.   Arguments used to reject 8 are analogous to argument used to reject claim 4.

15.   Arguments used to reject 12 are analogous to argument used to reject claim 4.

Conclusion

16.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDERRAHIM MEROUAN whose telephone number is (571)270-5254. The examiner can normally be reached on Monday to Friday 7:30 AM to 5:00 PM.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on (571) 272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published
applications may be obtained from either Private PAIR or Public PAIR. Status
information for unpublished applications is available through Private PAIR only. For
more information about the PAIR system, see http://pair-direct.uspto.gov. Should you
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Customer Service Representative or access to the automated information system, call
800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Abderrahim Merouan
Examiner
Art Unit 4192

/Pankaj Kumar/

Supervisory Patent Examiner, Art Unit 4192